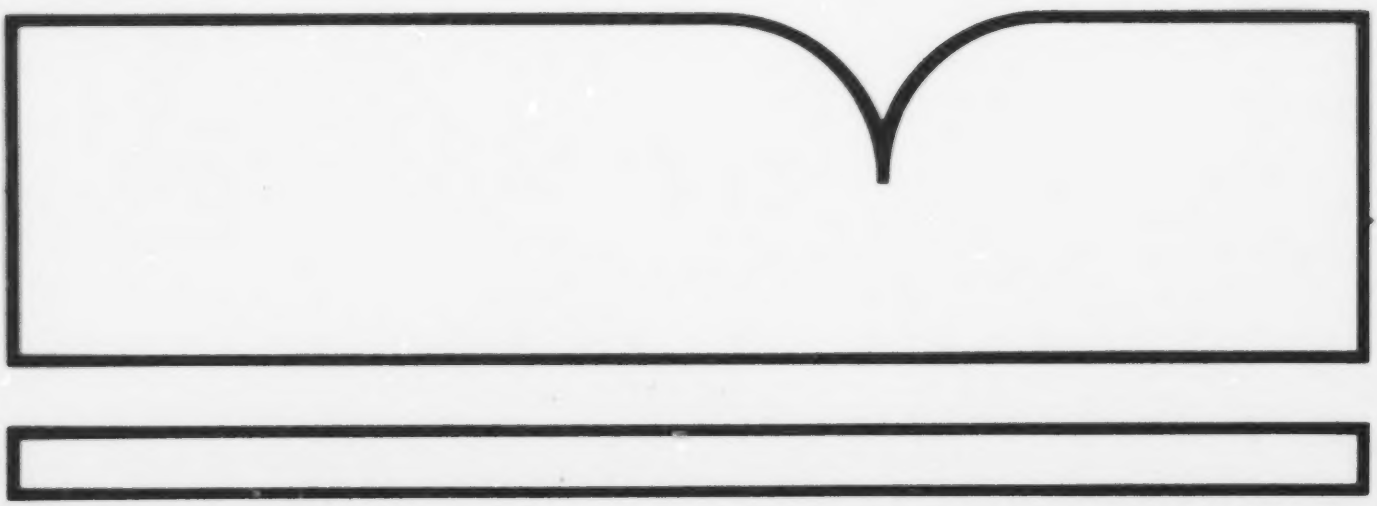
PB88-145149

Superfund Record of Decision (EPA Region 6)
Crystal City Airport, Zavala County, Texas
(First Remedial Action), September 1987

(U.S.) Environmental Protection Agency
Washington, DC

29 Sep 87



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Emergency and
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EPA/ROD/R06-87/023
September 1987

EPA

Superfund Record of Decision:

Crystal City Airport, TX

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16. ABSTRACT

The Crystal City Airport (CAA) site, comprising approximately 120 acres, is located in Zavala County, Texas. CCA began operations during World War II as a military installation for transporting and detailing persons of Japanese descent. In 1949, the U.S. Government deeded the airport to Crystal City. Since then, the city has operated the facility as a municipal airport. Several private aerial pesticide applicating companies conducted business at the airport until 1982. In April 1983, the Texas Department of Water Resources investigated the site because of the potential threat to local residents of waste pesticides left by applicating companies no longer in operation. Surficial soil at the site was found to be highly contaminated with pesticides. In October 1983, an Immediate Removal Action, initiated by the U.S. EPA, consolidated 40 yd^3 of waste and 50-70 drums in two onsite disposal cells. In May 1984, a second removal action disposed of 19 drums offsite and secured the site with a fence. Approximately 12,000 yd^3 of surface soil are contaminated with pesticides including: DDT, toxaphene and arsenic.

The selected remedial action includes: onsite consolidation of contaminated soil, drums and buildings; multi-layer RCRA capping; offsite injection well; disposal of decontaminated liquids; and fencing. The estimated present worth cost for this remedy is $1,600,000.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Record of Decision Crystal City Airport, TX First Remedial Action - Final Contaminated Media: surface soil Key contaminants: arsenic, DDT, toxaphene, pesticides, metals		

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DECLARATION FOR THE RECORD OF DECISION

Site Name and Location

The Crystal City Airport Superfund site is located in the City of Crystal City, Zavala County, Texas, in the south-central part of Texas.

Statement of Purpose

This decision document represents the selected remedial action for this site developed in accordance with CERCLA, as amended by SARA, and to the extent practicable, the National Contingency Plan.

The State of Texas has been provided a reasonable amount of time to review the proposed remedy but has remained silent.

Statement of Basis

This decision is based upon the Crystal City Airport administrative record. The attached index (Attachment A) identifies the items which comprise the administrative record upon which the selection of a remedial action is based.

Description of the Selected Remedy

- Onsite consolidation of all material which exceeds the health-based criteria of 100 mg/kg total pesticides.
- Placement of a RCRA cap over the consolidation cell.
- Monitor site for a minimum of 30 years following construction of selected remedy.
- Deep-well injection of decontamination liquids.
- Five year review of selected remedy.

Declaration

The selected remedy is protective of human health and the environment, attains Federal and State requirements that are applicable or relevant and appropriate, and is cost effective. Due to the characteristics of the contaminants, the lack of near surface groundwater, and the impermeable nature of the soils, treatment of the contaminants was found to be impracticable.

9-29-87
Date

Robert E. Layton Jr.
Robert E. Layton Jr., P.E.
Regional Administrator

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SUMMARY OF REMEDIAL ALTERNATIVE SELECTION

CRYSTAL CITY AIRPORT
CRYSTAL CITY, TEXAS

September 1987

SITE NAME, LOCATION AND DESCRIPTION

The Crystal City Airport Superfund Site is located in the City of Crystal City, Zavala County, Texas, in the south-central part of Texas (Figure 1). The airport is owned by the City of Crystal City. The site is comprised of approximately 120 acres of land. Surrounding the airport property to the north is land used for grazing animals, to the east is a municipal landfill to the south are both an elementary and high school as well as a residential area, and to the west is a residential area (Figure 2). The major aquifer containing potable water for the residents of Crystal City is the Carrizo aquifer located 750 feet below the surface.

In general, the project site is in a region of low population where the economy is dominated by agriculture. Crystal City is the county seat of Zavala County and the most populated town in the county with an estimated 8,075 inhabitants from the total county population of 11,390. The closest large city from Crystal City is San Antonio, located approximately 100 miles northeast.

SITE HISTORY

The Crystal City Airport was first operated during World War II as a military installation for transporting and detailing persons of Japanese extraction. In 1949, the U. S. Government deeded the airport property to the city. Since 1949 the city has operated the facility as a municipal airport. Several private companies conducted aerial pesticide applicating businesses at the airport until 1982.

In April, 1983, the Texas Department of Water Resources, the predecessor agency to the Texas Water Commission (TWC), conducted a preliminary investigation of the municipal airport after city officials voiced concern that agricultural chemicals, left by defunct aerial operators, presented a threat to local residents. On June 13 and July 23, 1983, followup investigations were conducted. The results of the sampling efforts conducted during these investigations indicated that surficial soil at the site was highly contaminated with pesticides. An Immediate Removal Action was initiated by the Environmental Protection Agency (EPA) on October 31, 1983, to remove the most highly contaminated materials. During this action, approximately 40 yd^3 of waste and between 50-70 drums of material were placed in two onsite disposal cells east of the runway. A second removal action was initiated by EPA in May 1984, during which 19 drums were transported off-site for disposal, a fence was constructed with a locked entrance gate, and warning signs were posted.

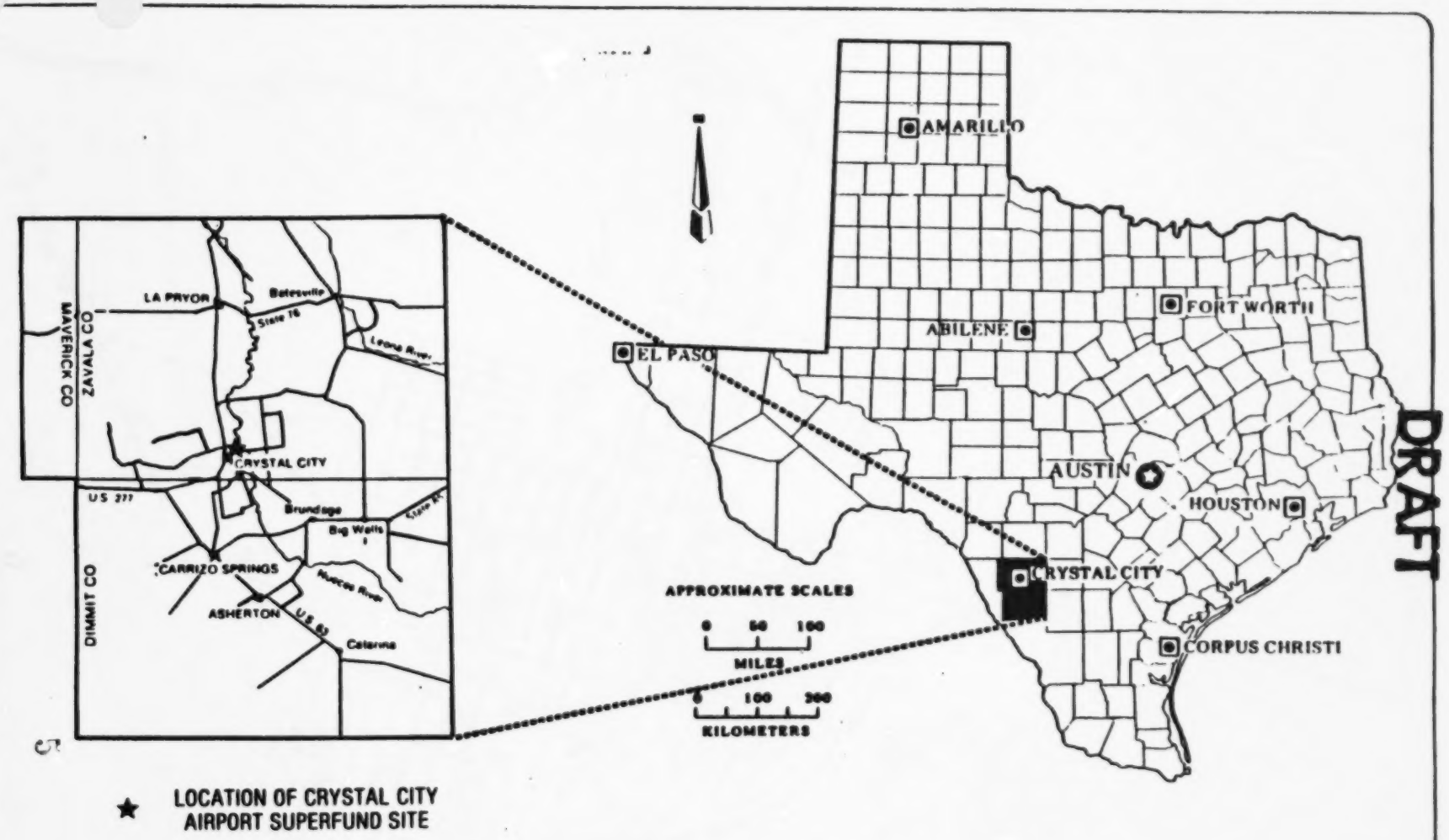

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FIGURE 1

MAP OF WINTER GARDEN DISTRICT
AND LOCATION OF CRYSTAL CITY AIRPORT SUPERFUND SITE

Figure 2

CRYSTAL CITY LAND USE

In October 1984, the Crystal City Airport site was ranked for inclusion on the National Priorities List (sites which appear to present a significant risk to public health and/or the environment). The State of Texas entered into a Cooperative Agreement with the Environmental Protection Agency (EPA) for $690,000 on September 28, 1985, to perform a Remedial Investigation (RI) and Feasibility Study (FS) at the site. In June 1986, Ebasco Services Incorporated was contracted by TWC to conduct the RI/FS. Field work began on September 28, 1986, and a draft RI report was submitted on April 7, 1987. A draft FS report was submitted on May 20, 1987.

Extent of Contamination

Table 1 summarizes the reports which were used to describe the nature and extent of contamination. Pathways and receptors are described in detail in these reports.

The primary areas found to be contaminated at the site are:

- o The surface soil adjacent to Frank's hangar
- o The surface soil adjacent to the southern hangar

The surficial soil occurring on the site includes the Crystal fine sandy loam, the Cotulla clay, the Maverick clay loam, the Pryor sandy clay loam and the Tonio fine sandy loam. These soils range in depth from 28 to 72 inches below grade. The soils are characterized by high clay content and extremely low permeabilities. The clay contents of these soils increase with depth.

The stratigraphy is generally consistent across the site. Two lithologic units of the El Pico Clay are present at the site. The first layer is predominantly sandy clay with some surficial layers of clayey to silty sand and silty clay. The layer extends from the surface to an average depth of 26 feet. Near the bottom of this layer, the sandy clay layer occasionally terminates above a 0.5 to 3 feet thick bed of clayey sand, silty sand or siltstone. The permeability of soil within the first layer of the El Pico Clay is 4.42×10^{-8} cm/sec. The second layer consist of hard clay with interbeds of sandy to silty clay, silty to clayey sand, siltstone and sandstone. The average depth of the second layer is from 2.5 to at least 180 feet. For the hard clays present in the lower layer, the permeability ranges from 1.48×10^{-8} to 3.0×10^{-9} cm/sec.

Due, in part, to the low permeability of the soil, the contamination is limited to the upper 1 to 2 feet of soil. Table 2 shows that maximum level detected for selected compounds and the frequency these were detected during RI. Figure 3 depicts area of contamination on the site. The estimated volume of contaminated soil exceeding 100 ppm total pesticide is 12,000 yd^3.

Near surface groundwater is not present below the site. The only known source of groundwater, Carrizo aquifer, is located 750 feet below the surface of the site and is isolated from the contaminated surface soils of the site by thick clay layers. The aquifer does not appear to be in any danger of future contamination from the airport.

TABLE 1

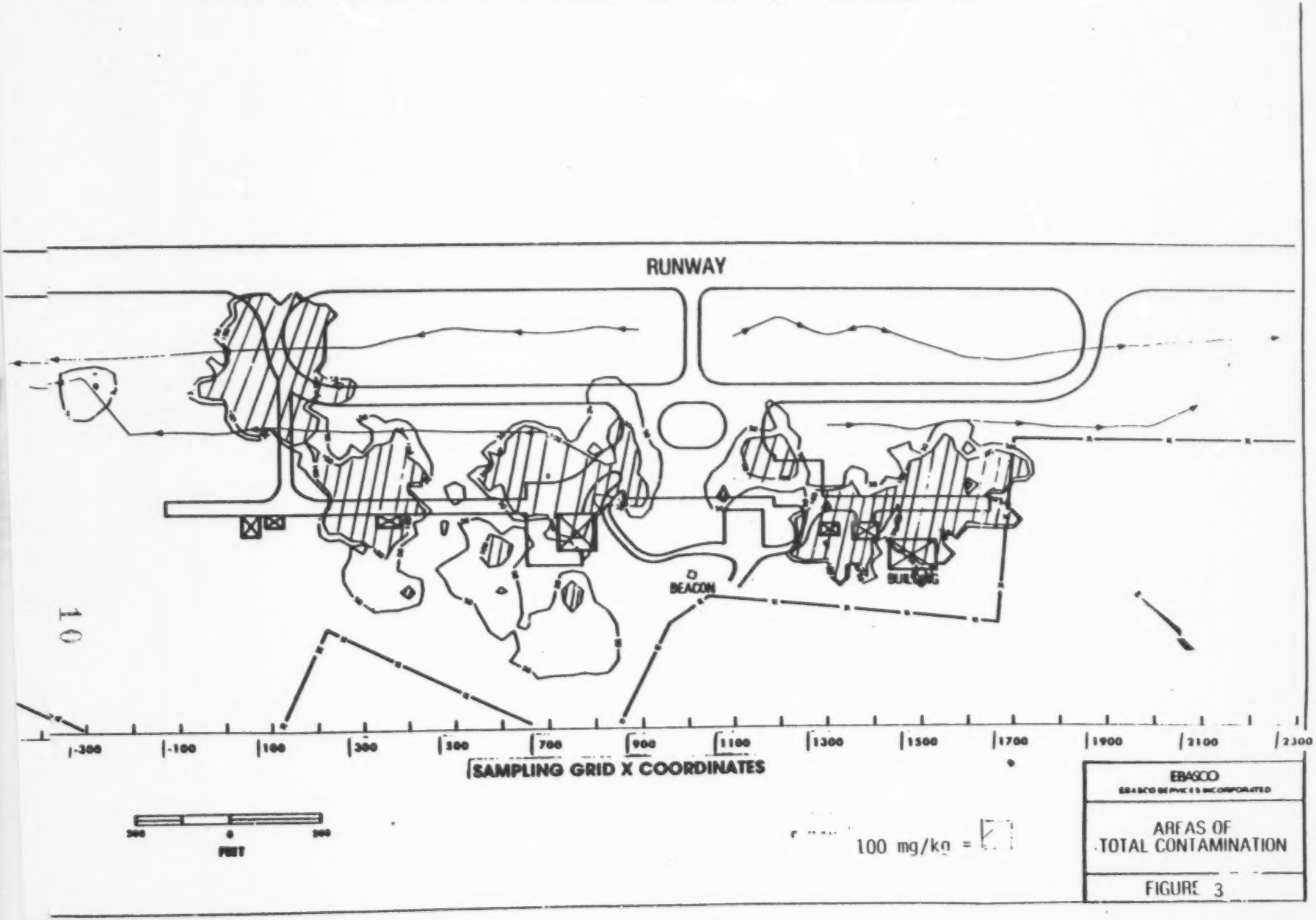
Chronology of Sampling Events/Investigation

Date	Agency/Firm	Purpose
April 1983	Texas Department of Water Resources, District 8	Initial Investigation
July 1983	Environmental Protection Agency	Supplemental Sampling
October 1983	Environmental Protection Agency	Initial Removal Action
February 1984	Texas Department of Water Resources	Supplemental Sampling
April 1984	Environmental Protection Agency	Final Removal Action
June 1987	EBASCO Services Incorporated	Remedial Investigation
July 1987	EBASCO Services Incorporated	Feasibility Study

TABLE 2

SUMMARY OF SOIL SAMPLING

COMPOUND	FREQUENCY DETECTED	MAXIMUM CONCENTRATION (MG/KG)
TOXAPHENE	43.6%	1113
DDT	44.2%	2502
ARSENIC	89.9%	1450



EBASCO
EBASCO SERVICES INCORPORATED

AREAS OF
TOTAL CONTAMINATION

FIGURE 3

Surface water from the Espantosa Slough, Nueces River and Volz Pond (Figure 4) for the most part, meet the water quality criteria limits, and therefore would not require treatment. Sediment samples collected at the same locations generally contained levels which were comparable to background soil levels.

Samples of ambient air were collected upwind and downwind of the site on two separate occasions. Based on the sample results, air quality at the site has not been measurably degraded as a result of the surface contamination present at the site.

Risk from Contaminants

The contaminants of greatest concern at the site (toxaphene, DDT, and arsenic) were chosen from the compounds detected based on their widespread distribution over the entire site as well as the relative toxicity and concentration. A risk assessment was conducted using these three indicator compounds. The first step in the exposure assessment required the identification of potential receptors. Target receptors identified in the assessment include:

- Occasional users of the site such as aircraft personnel and passengers, recreational users, and airport maintenance personnel, and
- Residents of housing area (adults and children).

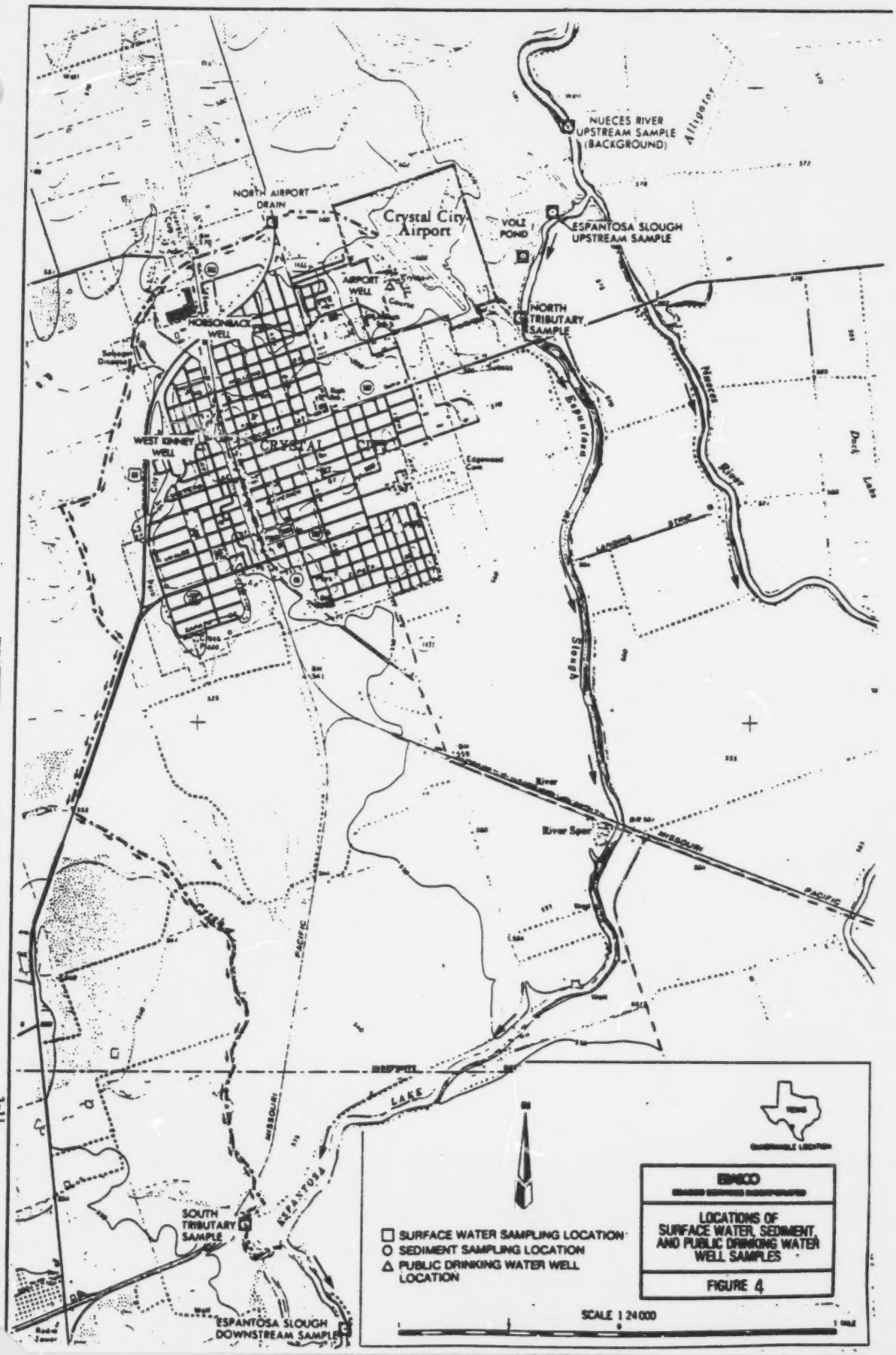
Target concentrations or clean-up levels were developed which will attain, to the extent practicable, a 10^{-6} to 10^{-5} risk level. In an effort to develop a single criteria, a combined pesticide level of 100 mg/kg was proposed for the contaminants of concern. This level will approach a 10^{-6} (one in one million) risk level throughout the entire site for both casual onsite exposure (15 days/ year) and residential children exposure as well as attain a 10^{-6} risk level for residential adult exposure. The 100 mg/kg level approaches a 10^{-5} (10 in one million) risk level for onsite exposure of 220 days/year. The Agency for Toxic Substances and Disease Registry (ATSDR) has concurred with this level of protection.

Results of the assessment indicate that remedial action is required to reduce the potential for public health exposure through:

- Direct contact with contaminated soils;
- Ingestion of contaminated soils; and
- Inhalation of contaminated dust particles.

ENFORCEMENT

Five potentially Responsible Parties (PRPs) have been identified including the City of Crystal City . Four of the PRPs are no longer in business, and the City of Crystal City appears to be unable to finance the cleanup.


NUECES RIVER UPSTREAM SAMPLE (BACKGROUND)
Alligator
NORTH AIRPORT DRAIN
Crystal City Airport
VOLZ POND
ESPANTOSA SLOUGH UPSTREAM SAMPLE
AIRPORT WELL
HORSEBACK WELL
NORTH TRIBUTARY SAMPLE
WEST KINNEY WELL
CRYSTAL CITY
Nueces River
Dead Lake
Sloan
River
River Spur
MISSOURI PACIFIC
LAKE
ESPANTOSA
SOUTH TRIBUTARY SAMPLE
ESPANTOSA SLOUGH DOWNSTREAM SAMPLE
SURFACE WATER SAMPLING LOCATION
SEDIMENT SAMPLING LOCATION
PUBLIC DRINKING WATER WELL LOCATION
EMCO
LOCATIONS OF SURFACE WATER, SEDIMENT AND PUBLIC DRINKING WATER WELL SAMPLES
FIGURE 4
SCALE 1:24000

COMMUNITY RELATIONS HISTORY

On October 4, 1985, the U.S. Environmental Protection Agency (EPA) issued a new release announcing that funds had been awarded to the Texas Water Commission (TWC). The money was to conduct studies on the Crystal City Airport site.

The TWC made a presentation to the Mayor, City Council and City Manager of Crystal City on September 9, 1986. The meeting was to discuss what activities would occur including on-site data gathering.

The completion of the studies was announced to the public via a news release issued by EPA on July 24, 1987. Along with an announcement for the August 20, 1987, public meeting to discuss the proposed remedy for the site.

An EPA prepared fact sheet which described alternative clean up plans along with the EPA preferred alternative was sent to the interested and affected public on August 10, 1987. The fact sheet gave a brief site history, described the process and alternatives and gave details about the public comment period and public meeting.

On the afternoon of August 20, 1987, EPA and TWC staff met with City leaders to brief them of the study findings and alternatives at 7:00 pm that evening, EPA and TWC conducted a public meeting at the Fly Junior High School Cafeteria. Nearly 45 people attended the public meeting.

Further details concerning community relations are contained in Appendix B.

ALTERNATIVES EVALUATION

The Feasibility Study for the Crystal City Airport site determined what actions, if any, would be appropriate as part of a permanent remedy for the site. Several alternative remedial technologies were developed to mitigate damage to, and provide protection of public health, and the environment from past and future releases of contaminants. A response action toward mitigating the release of contaminants is appropriate in accordance with the National Contingency Plan (NCP), 40 CFR Part 300.68.

Based on the results of the remedial investigation, objectives and criteria were developed for use in evaluating alternatives during the Feasibility Study (Table 3). In addition to the the requirements of the NCP the Superfund Amendments and Reauthorization Act of 1986 (SARA) includes a strong preference for permanent solutions and a requirement that all onsite remedial actions attain legally applicable or relevant and appropriate Federal and State standards, requirements, criteria or limitations (ARARs).

TABLE 3

OBJECTIVES OF REMEDIAL ACTION
CRYSTAL CITY AIRPORT RI/FS

PATHWAY	OBJECTIVE	CRITERIA
Soils-Short Term	Minimize direct exposure to workers onsite.	Perform remedy in areas of contamination above site specific cleanup criteria.
Soils - Long Term	Reduce levels to prevent chronic or acute exposure.	Attain site specific cleanup criteria of 100 mg/kg total pesticides. *
Air - Short Term	Prevent significant deterioration, onsite and offsite.	Maintain background air quality levels or OSHA, NIOSH Standards.
Air - Long Term	Prevent significant deterioration, onsite and offsite.	Maintain background air quality levels.
Surface waters-short term	Minimize surface water degradation.	Maintain background surface water quality or ambient water quality criteria at site boundary.
Surface waters-long term	Prevent surface water degradation.	Maintain background surface water quality or ambient water quality criteria at discharge to surface waters.
Groundwater	No groundwater encountered.	No groundwater encountered.

* Level corresponds to a 10^{-5}-10^{-6} excess lifetime cancer risk factor.

In addressing permanence and long-term effectiveness of remedial actions, EPA must consider the following:

- long-term uncertainties of land disposal;
- goals and requirements of the Resource Conservation and Recovery Act (RCRA);
- persistence, toxicity and mobility of the hazardous substances of concern;
- short and long-term potential for adverse human health effects;
- longterm maintenance costs, including remedy failure costs;
- potential threat to human health and the environment from the excavation, transportation, and redisposal, or containment of hazardous substances or pollutants or contaminants.

SARA establishes a preference for remedial actions that utilize treatment to permanently and significantly reduce the volume, toxicity, or mobility of hazardous substances. Offsite transport and disposal without treatment is the least preferred option where practicable treatment technologies are available.

A number of potentially applicable remedial technologies were studied for the Crystal City Airport site. Treatment alternatives for source actions were developed ranging from an alternative that would eliminate/minimize the need for long-term management at the site, to an alternative using, as a principal element, treatment that would significantly reduce the toxicity, mobility, or volume of site waste.

The following broad criteria was used in the initial screening of alternatives and is consistent with the draft guidance distributed pursuant to SARA.

1. Effects of the Alternative. The effects of each alternative should be evaluated in two ways: (i) whether the alternative itself or its implementation has any adverse environmental effects; and (ii) for source control remedial actions, whether the alternative is likely to achieve adequate control of source material, or for offsite remedial actions, whether the alternative is likely to effectively mitigate and minimize the threat of harm to public health, or the environment should be considered.

2. Implementability. Alternatives must be feasible for the location and conditions of the release, applicable to the problem, and represent a reliable means of addressing the problem.

3. Cost. For each alternative, the cost of installing or implementing the remedial action must be considered, including operation and maintenance costs. Cost is an important factor when comparing alternatives which provide similar results, however, it is not used to discriminate between treatment and nontreatment alternatives.

After this initial screening of alternatives, eight alternatives were retained for detailed evaluation and are discussed below and summarized on Table 4.

ALTERNATIVE 1 (NO ACTION)

The Superfund statute requires full consideration be given to a no-action alternative. No remediation of the soil contamination would occur with this alternative. This alternative does not prevent future migration of contaminants, does not clean up the existing contamination and does not prevent accidental exposure to site contamination. The associated $0.6 million present worth cost of this alternative is for fencing and environmental monitoring. Under this alternative the waste would neither be consolidated nor isolated; therefore, the possibility of further migration and exposure to hazardous waste is not reduced.

ALTERNATIVE 2 (IN PLACE CONTAINMENT- ASPHALT CAP)

Due to the impermeable nature of the soils, the lack of near surface groundwater resources and the probable future use of the site as an airport; the capping alternative would be highly effective, both as a source containment technology and as an isolation shield to protect against physical contact with the waste.

A 7.92 acre asphalt cap would adequately isolate the areas of the site which exceed the 100 mg/kg clean up limit as well as the areas where the four disposal cells are located. A nine inch cap constructed of asphalt rather than a five foot RCRA cap was considered since the height of a RCRA compliant cap would severely limit the usage of the airport since soil contamination is present along areas of the runway and taxiways. Isolating waste in place with a RCRA cap would create an unnecessary hazard for landing aircrafts. An asphalt cap, rather than a RCRA compliant cap, would enable the site usage to remain as an airport and still provide an effective barrier to all pathways of migration.

The cap would require periodic maintenance. Any construction at the airport would need to consider the possibility of exposure to the untreated waste below the cap. The estimated present worth cost for this alternative is $2.0 million, including 30 years of cap maintenance.

ALTERNATIVE 3 (CONSOLIDATION - RCRA CAP)

Consolidating the waste (contaminated soil, drums, buildings) and capping with a multi-layered cap provides similar results as simply capping in place; however, the land use may be maintained as an airport. Decontamination liquids would be disposed of at a secure offsite injection well.

The waste would be consolidated in an area onsite which would pose no hazard to landing aircraft. The cell cap will be specifically designed to protect against rainfall infiltration and rainfall erosion. The disposal cell will be approximately 190 x 190 feet, excavated to a depth of 17 feet. The estimated cost of this alternative is $1.6 million. Failure of this remedy is unlikely as long as proper maintenance of the cap is conducted.

TABLE 4

SCREENING SUMMARY OF REMEDIAL ALTERNATIVES

CRYSTAL CITY AIRPORT

	EFFECTIVENESS					FEASIBILITY	COST	
Clean-up Concepts	Protects HH&E	Meets ARARs	Reduces M	Reduces T	Reduces V	Tech	Capitol/O&M Failure $(m)	Rationale
No Action	--	-	0	0	0	++	0.6	Retained for comparative purposes
Asphalt cap	++	0	+	0	0	++	2.0	Effective containment of contaminant soils/ materials; asphalt cap would be in violation of ARARs.
Consolidation RCRA Cap	+	+	+	0	0	++	1.6	Most effective alternative; similar risks as more costly alternatives; relatively simple to implement.
Landfill without treatment	+	+	+	0	0	-	2.1	Removes exposure pathway hazards; rigid design consideration; increased cost for no decrease in risk.
Landfill with Solidification	+	+	+	0	--	-	3.8	Effective isolation remedy; increased cost for very little decrease in risk; Alternative 3 essentially achieves same risk without increasing volume of waste.

TABLE 4 (CONT.)

SCREENING SUMMARY OF REMEDIAL ALTERNATIVES

CRYSTAL CITY AIRPORT

Clean-up Concepts	EFFECTIVENESS: Protects HH&E	EFFECTIVENESS: Meets ARARs	EFFECTIVENESS: Reduces M	EFFECTIVENESS: Reduces T	EFFECTIVENESS: Reduces V	FEASIBILITY: Tech	COST: Capitol/O&M Failure $ (m)	Rationale
Integrated Incineration System	+	+	+	+	0	-	11.4	Innovative system requiring further study during design. Difficult to implement incinerator onsite; significant maintenance required; not effective in reducing toxicity of arsenic.
Offsite landfill	0	+	+	0	0	++	7.0	Tranportation hazards associated with removing waste from site; increase cost and risk relating to other containment remedies.
Critical Pressure Unit	0	+	+	+	+	--	16.1	Innovative technology requiring further study during design; system operation would be difficult; effectiveness is questionable.

O&M: Operation and Maintenance
HH&E: Human Health and the Environment
ARARs: Applicable or relevant and appropriate requirements
M: Mobility
T: toxicity
V: Volume

ALTERNATIVE 4 (CONTAINMENT WITHOUT TREATMENT-LANDFILL)

Untreated contaminated soil, drums, buildings would be placed in a landfill, designed in accordance with Section 264.301 Subpart N of RCRA. Liquids generated during construction activities would be disposed at an offsite injection well. The effectiveness of this alternative is similar to alternatives 2 and 3. Disadvantages with this remedy include the cost of remedy failure and the rigid design consideration required. An accurate estimate of the volume of waste to be placed in the landfill is required to adequately design the system. The estimated present worth cost is $2.0 million for this remedy. According to manufacturers of lining materials, a liner is expected to last at least 100 years. Should liner fail at that time, the present worth failure cost was estimated at $100,000 The total present worth cost, including failure cost, is $2.1 million.

ALTERNATIVE 5 (CONTAINMENT WITH TREATMENT - LANDFILL)

The landfill would be designed in accordance with RCRA landfill requirements including cap requirements. The contaminated material would be treated (solidified), to the extent practicable, to reduce mobility.

The solidification procedure would include the decontamination water and storm water runoff. The immobilization process will not require the offsite disposal of liquids generated during construction activities. Due to the impermeable nature of the soil and the lack of near surface groundwater, the environmental and/or human health protection achieved by immobilizing the soils and placing the treated waste in a secure landfill is similar to the containment protection previously discussed in Alternatives 2,3, and 4. The major disadvantage of Alternative 5 is the increased cost associated with the solidification/stabilization process which will not serve to further reduce the mobility or toxicity of the waste at the site because the contaminants are already highly immobilized and fixed within a solid soil matrix. In addition, the construction of the RCRA landfill must be completed before starting the solidification/stabilization process. The cost of this remedy is $3.7 million with a failure cost of $100,000.

ALTERNATIVE 6 (INTEGRATED INCINERATION)

A mobile incinerator plant combined with appropriate exhaust gas and ash cleaning equipment would be placed onsite. The incinerator, designed in accordance with Section 264.340 Subpart O of RCRA, would remove and destroy the organic contaminants in the soil/materials. A secondry treatment technology (soil washing) would be necessary to remove the arsenic compounds from the "treated" soil. These technologies would be designed as one fully integrated system. Contaminated liquids would be collected and mixed with the soils prior to being fed into the incinerator. As systems are not currently available for combining incineration and soil washing technologies, a custom (innovative) system would be designed. Although Section 121(b)(2) of SARA allows for the selection of an innovative technology, disadvantages exist with this integrated incineration system

including the demonstrated ability of the performance of such a system. Due to the complexity of operation and maintenance of the component system; the implementability and reliability are also considered disadvantages. The costs associated with the remedy is $11.4 million, including operation and maintenance costs.

ALTERNATIVE 7 (OFF-SITE LANDFILL)

All contaminated soil, drums, demolished buildings would be disposed of at an offsite RCRA landfill. All contaminated liquids (decontamination liquids) would be disposed of at an offsite injection well. Based on Section 121(b)(1) of SARA, off-site transport and disposal of untreated hazardous substances is the least favored option when others exists. At the Crystal Airport site other feasible alternatives have been developed; therefore, total off-site disposal, along with no action, is considered the least preferred alternatives. A cost of $7.0 million has been estimated for this remedy.

ALTERNATIVE 8 (CRITICAL PRESSURE FLUID EXTRACTION UNIT)

Removal from the soil, of organic contaminants and arsenic may be achieved with soil flushing. The organic contaminants residual would be destroyed, off-site, in an approved incinerator. Arsenic contaminated residual would be placed in an off-site landfill. The flushing system would be designed as a two stage system. The first stage is a critical pressure fluid extraction unit for removing organics. The second stage utilizes water, enhanced with the oxidizer hydrogen peroxide, to remove arsenic compounds. Although Section 121 (b)(2) of SARA allows for the selection of an innovative technology, numerous disadvantages of the soil flushing system exist including the unproven feasibility, implementability and reliability. The estimated cost for this alternative is $16.1 million.

Applicable or Relevant and Appropriate Requirements

Section 121 (d)(2)(A) of SARA requires EPA to give primary consideration to remedial actions that attain or exceed applicable or relevant and appropriate requirements (ARAR) of other federal and state public health and environmental laws. Environmental laws which will have an impact on the proposed remedies at the Crystal City Airport site are summarized on Table 5.

SELECTED REMEDY

Considering the site setting (i.e., site stratigraphy and climate), nature of the waste, and current and potential site hazards, the recommended alternative for the Crystal City Airport is alternative 3; onsite consolidation with a RCRA cap. Consolidating and capping soil contaminated in excess of 100 mg/kg total toxaphene, DDT and arsenic would be highly effective in protecting human health and the environment. The effect of this remedy would minimize the forces which drive the transport of waste from the site as well as to remove the direct contact threat. By consolidating the contaminated soil away from the runway and taxiways, land use could be maintained. A fence would be erected around the capped area to protect the integrity of the remedy. Treatment will not significantly reduce the mobility of the contaminants due to both the characteristics of the contaminants as well as the impermeable nature of the soils.

TABLE 5

Summary of Environmental Statutes

Statute	Regulation	Remedial Alternatives							
		1) No action	2) Asphalt Cap	3) RCRA Cap	4) RCRA landfill	5) RCRA landfill and solidify	6) Incineration	7) Offsite landfill	8) Critical pressure unit
Superfund Amendments and Reauthorization Act (SARA)	Prefers to the extent practicable, permanent and significant reduction of volume, mobility or toxicity [Section 121(b)(1)]	-	x	x	x	x	x	x	x
Resource Conservation and Recovery Act (SARA)	A) Operation of hazardous waste storage facilities (40 CFR 264)	-	-	x	x	x	x	x	x
	B) Hazardous waste land disposal ban (40 FCR 268)				x	x	x	x	x
Clean Water Act	Sets water quality standards (40 CFR 301, 307, 403)	-	x	x	x	x	x	x	x
Occupational Health and Safety Act.	Protection standards for workers (29 CFR 1910)	x	x	x	x	x	x	x	x
Clean Air Act	Establishes ambient air quality standards and emissions limitations (42 U.S.C. 7401)			x	x	x	x	x	x
Department of Transportation hazardous transportation	Regulates the transport of hazardous waste (49 CFR 179)						x	x	x
Texas Solid Waste Disposal Act	Operation of hazardous waste storage	-	-	x	x	x	x	x	x
Texas Clean Air Act	Texas Air Regulations, Section 101.4			x	x	x	x	x	x

Key

X ARAR will be met
- ARAR will not be met
[ ] (Blank) - Not an ARAR

Potential treatment processes which are capable of reducing the mobility of the contaminants significantly increase the volume of the waste (25 to 30%). The toxicity of the organic contaminants may be reduced through an integrated incineration system; however, innovative technologies would be incorporated into the design in order to develop a system to remove the arsenic compound from the soil. Such a system does not currently exist. Given the limited treatment methods available for the contaminants at this site and the location of the site, Alternative 3 represents the preferred remedy.

Details of alternative 3 are provided in Figure 5. The site will be monitored for a period of at least 30 years (post-closure time period stipulated under RCRA) to ensure that no significant contaminant concentrations migrate from the site. If however, future migration does occur, appropriate actions will be taken.

Operation and Maintenance (O&M)

Projected operation and maintenance requirement for the proposed remedy include restrictions on construction activities in the capped area, periodic inspections, warning notice replacement, and landscape and cap repair actions (grass cutting, erosion gully repair, etc.).

The State of Texas will assume responsibility for operation and maintenance of the site. EPA will pay 90% of the first year operation and maintenance cost.

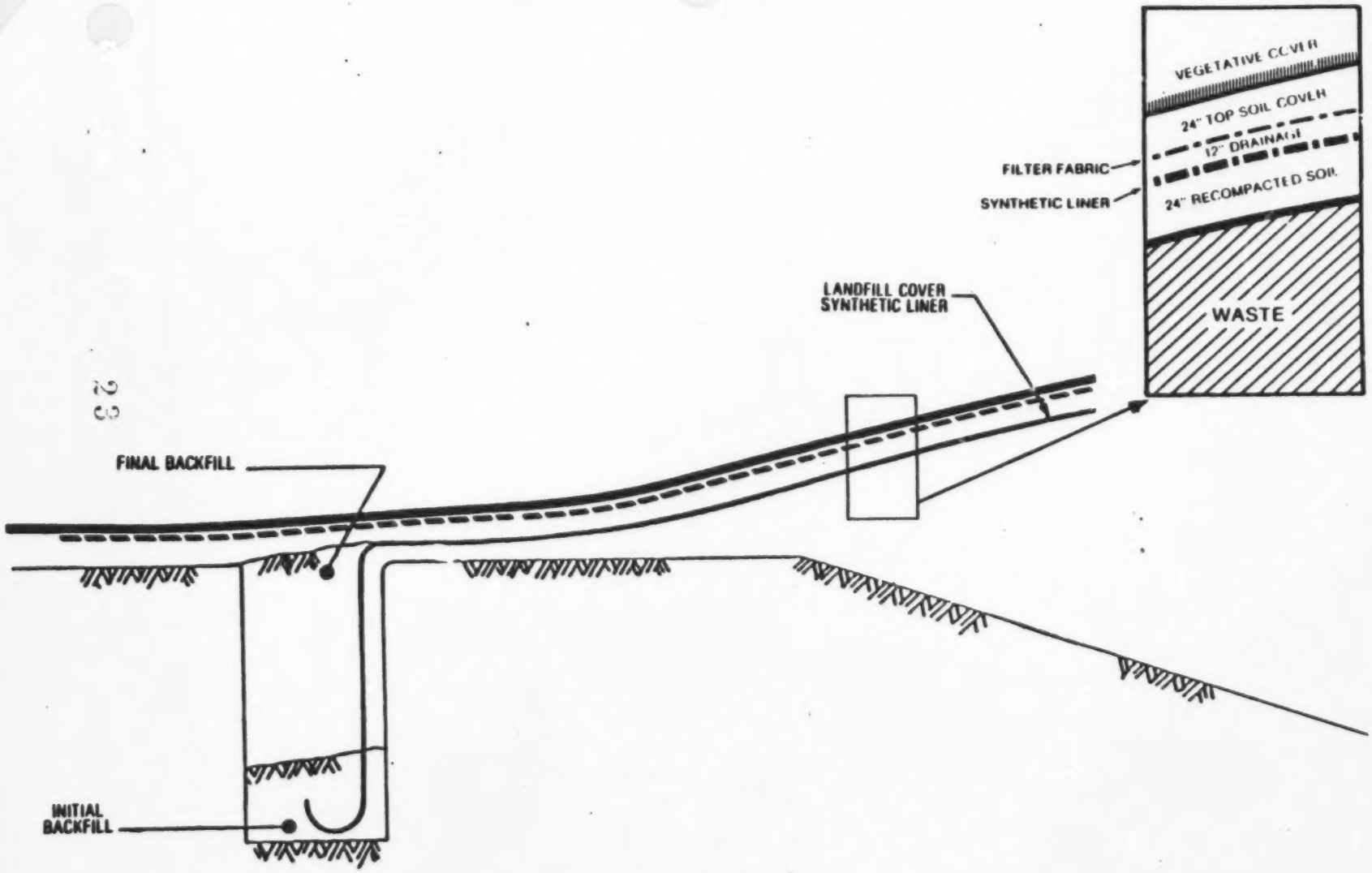
Schedule

- Approve Remedial Action (sign ROD)	September 1987
- Completed Enforcement Negotiations	November 1987
- Award Cooperative Agreement Amendment for Design of the Approved Remedy	November 1987
- Start Design	January 1988
- Complete Design	August 1988
- Award Remedial Action Cooperative Agreement Amendment for Construction of Approved Remedy	October 1988
- Start Construction	April 1989
- Complete Construction	August 1989

No future remedial actions are anticipated. The selected remedial action is considered permanent. If, however, significant unforseen offsite contamination occurs as a result of the site, appropriate remedial measures will be taken.

The site will be monitored for at least 30 years to ensure the reliability of the implemented remedial action.

SARA also states that if an alternative results in any hazardous substances, pollutants, or contaminants remaining on site, the remedial action shall be reviewed at least every five years to assure that human health and the environment is being adequately protected.



PROJECT		
CRYSTAL CITY AIRPORT FEASIBILITY STUDY	SECURE LANDFILL LINING AND ANCHOR DETAIL	SCALE : NOT TO SCALE FIGURE 5

M-81

ATTACHMENT A

Index
Crystal City
Airport

Document Date: 4/28/83
Document Type: Investigation Report
Originator City of Crystal City
Originator-Affiliation (same)
Recipient: David Lopez
Recipient-Affiliation EPA RPM R-6
Decription: Frank Crop Dusting Service, Inc.
Number of pages: 15
Document Number Sequence: 1

Document Date: 4/25/83
Document Type: Crystal City Municipal Airport
Originator: (same)
Originator-Affiliation (same)
Recipient: EPA
Recipient-Affiliation: EPA RPM R-VI
Description: Pesticide Analysis
Number of pages: 5
Document Number Sequence: 2

Document Date: 4/29/83
Document Type: Texas Dept. of Health Bureau of Labs
Originator: Bureau of Labs
Originator-Affiliation: Texas Dept of Health
Recipient: David Lopez
Recipient-Affiliation: EPA RPM R-VI
Description: Soil Analysis
Number of pages: 3
Document Number Sequence: 3

Document Date: 4/29/83
Document Type: Texas Dept. of Health Bureau of Labs
Originator: Bureau of Labs
Originator-Affiliation: Texas Dept of Health
Recipient: David Lopez
Recipient-Affiliation: EPA RPM R-VI
Description: Soil Analysis
Number of pages: 3
Document Number Sequence: 4

Document Date: 4/29/83
Document Type: Texas Dept of Health Bureau of Labs
Originator: Bureau of Labs
Originator-Affiliation: Texas Dept. of Health
Recipient: David Lopez
Recipient-Affiliation: EPA RPM R-VI
Description: Soil Analysis
Number of pages: 1
Document Number Sequence: 5

Document Date: 4/29/83
Document Type: Texas Dept. of Health Bureau of Labs
Originator: Bureau of Labs
Originator-Affiliation: Texas Dept. of Health
Recipient: David Lopez
Recipient-Affiliation: EPA RPM R-VI
Description: Soil Analysis
Number of pages: 1
Document Number Sequence: 6

Document Date: 5/3/83
Document Type: TDWR Memo
Originator: Henry Karnei, Jr.
Originator-Affiliation: TDWR
Recipient: Gary Schroeder
Recipient-Affiliation: Solid Waste and Spill Response Sec.
Description: Investigation of an abandoned Aerial Applicator Site at CCA
Number of pages: 5
Document Number Sequence: 7

Document Date: 5/5/83
Document Type: memo, telephone
Originator: Mike Dick
Originator-Affiliation: TDWR
Recipient: Skip Francis
Recipient-Affiliation: TDWR
Description: Crystal City Airport
Number of pages: 1
Document Number Sequence: 8

Document Date: 5/6/83
Document Type: memo
Originator: Vernon Francis
Originator-Affiliation: TDWR
Recipient: Gary Schroeder
Recipient-Affiliation: TDWR
Description: Enforcement Report
Number of pages: 4
Document Number Sequence: 9

Document Date: 5/20/83
Document Type: Weston-Sper Correspondence
Originator: Frank Omellion
Originator-Affiliation: TAT-Region VI
Recipient: Charles Garza
Recipient-Affiliation: DPO-Region VI
Description: Crystal City Hazardous Waste Site
Number of pages: 2
Document Number Sequence: 10

Document Date: 6/30/83
Document Type: TDWR
Originator: Dan McClellan
Originator-Affiliation: TDWR
Recipient: Gary D. Schroeder
Recipient-Affiliation: P. E. Chief
Description: Crystal City Municipal Airport Investigation
Number of pages: 3
Document Number Sequence: 11

Document Date: 6/30/83
Document Type: memo
Originator: Dan McClellan
Originator-Affiliation: TDWR
Recipient: Gary Schroeder
Recipient-Affiliation: TDWR
Description: Airport Investigation (with maps)
Number of pages: 11
Document Number Sequence: 12

Document Date: 7/1/83
Document Type: TDWR correspondence
Originator:
Originator-Affiliation: TDWR
Recipient: William J. Librizzi, Director
Recipient-Affiliation: EPA Region-VI
Description: Sample analysis results from the Crystal City Airport abandoned applicator site
Number of pages: 2
Document Number Sequence: 13

Document Date: 7/6/83
Document Type: TDWR Interoffice memo
Originator: Henry Karnei, Jr.
Originator-Affiliation: TDWR EQ Specialist Dist. 8
Recipient: Gary Schroeder
Recipient-Affiliation: TDWR Solid Waste and Spill Response Sec.
Description: Chemical analysis of sampler collected at the abandoned aerial applicator site at CCA
Number of pages: 5
Document Number Sequence: 14

Document Date: 7/15/83
Document Type: TDWR Interoffice memo
Originator: Dan McClellan
Originator-Affiliation: TDWR
Recipient: Gary D. Schroeder
Recipient-Affiliation: TDWR P. E. Chief
Description: Immediate Removal Action for CCA abandoned aerial applicator site
Number of pages: 3
Document Number Sequence: 15

Document Date: 7/25/83
Document Type: memo
Originator: George A. Jones
Originator-Affiliation: CDC
Recipient: George Buynoski
Recipient-Affiliation: USEPA-public health advisor
Description: recommend residential sampling
Number of pages: 1
Document Number Sequence: 16

Document Date: 8/5/83
Document Type: TDWR Interoffice memo
Originator: Henry Karnei, Jr.
Originator-Affiliation: TDWR
Recipient: Gary Schroeder
Recipient-Affiliation: TDWR Solid Waste and Spill Response Sec.
Description CC Municipal Airport
Number of pages: 3
Document Number Sequence: 17

Document Date: 8/12/83
Document Type: lab report
Originator: William Langley
Originator-Affiliation: USEPA GES-HL
Recipient: Charles Gazda
Recipient-Affiliation: USEPA GES-E
Description: lab results
Number of pages: 14
Document Number Sequence: 18

Document Date: 8/19/83
Document Type: lab report
Originator: William Langley
Originator-Affiliation: USEPA GES-HL
Recipient: Charles Gazda
Recipient-Affiliation: USEPA GES-E
Description: lab results
Number of pages: 10
Document Number Sequence: 19

Document Date: 8/26/83
Document Type: lab report
Originator: William Langley
Originator-Affiliation: USEPA GES-HL
Recipient: Charles Gazda
Recipient-Affiliation: USEPA GES-E
Description: lab results
Number of Pages: 17
Document Number Sequence: 20

Document Date: 8/26/83
Document Type: letter
Originator: James Turner
Originator-Affiliation: USEPA
Recipient: Jose Balderas
Recipient-Affiliation: Crystal City Manager
Description: threat to drinkingwater
Number of pages: 2
Document Number Sequence: 21

Document Date: 9/1/83
Document Type: EPA lab report
Originator: William D. Langley
Originator-Affiliation: Houston EPA office
Recipient: Charles Gazda, Chief
Recipient-Affiliation: Energency Response Branch
Description: Transmittal of laboratory report
Number of pages: 11
Document Number Sequence: 22

Document Date: 9/2/83
Document Type: communication record
Originator: David Price
Originator-Affiliation: USEPA GAW-SE
Recipient: Jose Balderas
Recipient-Affiliation: Crystal City Manager
Description: city cleanup assistance
Number of pages: 1
Document Number Sequence: 23

Document Date: 9/16/83
Document Type: Air and Waste Management Division
Originator: Allyn M. Davis, Director
Originator-Affiliation: Air and Waste Management Division
Recipient: Darwin C. Mandell
Recipient-Affiliation: Crystal Spraying Service
Description: Crystal City, Texas Airport Site
Number of pages: 3
Document Number Sequence: 24

Document Date: 9/23/83
Document Type: TDWR telephone memo
Originator: DMI
Originator-Affiliation: TDWR
Recipient: Lopez
Recipient-Affiliation: TDWR
Description: Crystal City
Number of pages: 4
Document Number Sequence: 25

Document Date: 9/29/83
Document Type: memo
Originator:
Originator-Affiliation: TDWR
Recipient: David Lopez
Recipient-Affiliation: USEPA-Dallas
Description: city unable to do cleanup
Number of pages: 1
Document Number Sequence: 26

Document Date: 10/1/83
Document Type: photo package
Originator: N/A
Originator-Affiliation: N/A
Recipient: N/A
Recipient-Affiliation: N/A
Description: site photographs
Number of pages: 10
Document Number Sequence: 27

Document Date: 10/28/83
Document Type: Superfund Enforcement Section
Originator: Samuel L. Nott, Chief
Originator-Affiliation: EPA
Recipient: Clarence Sugarek
Recipient-Affiliation: Dallas Pest Control
Description: Crystal City, TV Airport Site
Number of pages: 1
Document Number Sequence: 28

Document Date: 4/21/83 - 11/2/83
Document Type: field notes
Originator: David Lopez
Originator-Affiliation: City of Crystal City
Recipient: N/A
Recipient-Affiliation: N/A
Description: field notes
Number of pages: 25
Document Number Sequence: 29

Document Date: 11/9/83
Document Type: TDWR Interoffice memo
Originator: Tim Wolterink
Originator-Affiliation: Abandoned Site Response Unit
Recipient: Dan McClellan
Recipient-Affiliation: Spill Response Unit
Description: meeting with City Manager
Number of pages: 2
Document Number Sequence: 30

Document Date: 1/12/84
Document Type: memorandum
Originator: Henry Karnei, Jr.
Originator-Affiliation: USEPA
Recipient: Gary Schroeder
Recipient-Affiliation: TDWR
Description: inadequate clean-up of site by EPA
Number of pages: 4
Document Number Sequence: 31

Document Date: 3/6/84
Document Type: memorandum
Originator: Henry Karnei, Jr.
Originator-Affiliation: USEPA
Recipient: Gary Schroeder
Recipient-Affiliation: TDWR
Description: follow-up inspection
Number of pages: 4
Document Number Sequence: 32

Document Date: 3/13/84
Document Type: memorandum
Originator: Dan McClellan
Originator-Affiliation: USEPA
Recipient: Gary Schroeder
Recipient-Affiliation: TDWR
Description: investigation of site
Number of pages: 2
Document Number Sequence: 33

Document Date: 3/29/84
Document Type: request
Originator:
Originator-Affiliation: 10 point document
Recipient:
Recipient-Affiliation:
Description: immediate removal request
Number of pages: 20
Document Number Sequence: 34

Document Date: 4/4/84
Document Type: memo
Originator: Henry Karnei
Originator-Affiliation: TDWR
Recipient: Bryan Dixon
Recipient-Affiliation: TDWR
Description: results of samples
Number of pages: 1
Document Number Sequence: 35

Document Date: 4/12/84
Document Type: memo
Originator: William Langley
Originator-Affiliation: USEPA
Recipient: Phil Crocker
Recipient-Affiliation: USEPA
Description: data review from Texas Dept. of Ag.
Number of pages: 2
Document Number Sequence: 36

Document Date: 4/13/84
Document Type: letter
Originator: Jose Balderas
Originator-Affiliation: Crystal City Manager
Recipient: Dick Whittington
Recipient-Affiliation: USEPA
Description: city clean-up assistance
Number of pages: 1
Document Number Sequence: 37

Document Date: 4/13/84
Document Type: memo
Originator: Henry Karnei
Originator-Affiliation: TDWR
Recipient: Bryan Dixon
Recipient-Affiliation: TDWR
Description: additional results of samples
Number of pages: 3
Document Number Sequence: 38

Document Date: 4/21/84
Document Type:
Originator: J. Lucas
Originator-Affiliation: Weston
Recipient: N/A
Recipient-Affiliation: N/A
Description: investory of chemical containers
Number of pages: 2
Document Number Sequence: 39

Document Date: 4/25/84
Document Type: notes
Originator: David Lopez
Originator-Affiliation: USEPA
Recipient: N/A
Recipient-Affiliation: N/A
Description: site field notes with photos
Number of pages: 34
Document Number Sequence: 40

Document Date: 5/9/84
Document Type: letter
Originator: Charles Bond
Originator-Affiliation: Weston-Sper
Recipient: Charles Gazda
Recipient-Affiliation: ERB
Description: Emergency Response Summary
Number of pages: 2
Document Number Sequence: 41

Document Date: 6/26/84
Document Type: report
Originator:
Originator-Affiliation:
Recipient:
Recipient-Affiliation:
Description: sampling for pesticides
Number of pages: 4
Document Number Sequence: 42

Document Date: 6/29/84
Document Type: Action Report - Immediate Removal Action
Originator: David Lopez
Originator-Affiliation: TWC
Recipient: Samuel Nott
Recipient-Affiliation: Chief Superfund Branch
Description: After Action Report
Number of pages: 4
Document Number Sequence: 43

Document Date: 7/84
Document Type: report
Originator: TACB
Originator-Affiliation:
Recipient:
Recipient-Affiliation:
Description: sampling project of TDWR
Number of pages: 5
Document Number Sequence: 44

Document Date: 10/9/84
Document Type: news article
Originator: Dwight Silverman
Originator-Affiliation: San Antonio Light
Recipient: public
Recipient-Affiliation: public
Description: toxic chemicals in landfill
Number of pages: 1
Document Number Sequence: 45

Document Date: 10/10/84
Document Type: news article
Originator: Dwight Silverman
Originator-Affiliation: San Antonio Light
Recipient: public
Recipient-Affiliation: public
Description: toxic chemicals in landfill
Number of pages: 1
Document Number Sequence: 46

Document Date: 11/6/84
Document Type: report
Originator: David Lopez
Originator-Affiliation: USEPA (GES-E)
Recipient: Rod Kimbro
Recipient-Affiliation: TDWR
Description: After Action Report
Number of pages: 9
Document Number Sequence: 47

Document Date: 5/1/85
Document Type: memo
Originator: Dick Whittington
Originator-Affiliation: USEPA (6A)
Recipient: Jack McGrawy
Recipient-Affiliation: USEPA (WI-562)
Description: Increase RI/FS Study
Number of pages: 1
Document Number Sequence: 48

Document Date: 6/28/85
Document Type: letter
Originator: Jose Balderas
Originator-Affiliation: Crystal City Manager
Recipient: Allyn Davis
Recipient-Affiliation: USEPA
Description: city participation in RI/FS
Number of pages: 1
Document Number Sequence: 49

Document Date: 7/15/85
Document Type: letter
Originator: Robert Hannesschlager
Originator-Affiliation: USEPA (6AW-S)
Recipient: Bryan Dixon
Recipient-Affiliation: TDSW
Description: RI/FS Funds
Number of pages: 2
Document Number Sequence: 50

Document Date: 7/16/85
Document Type: report
Originator: Charles Faulds
Originator-Affiliation: TDWR
Recipient: Bonnie Devos
Recipient-Affiliation: USEPA
Description: work scope and cost estimate
Number of pages: 32
Document Number Sequence: 51

Document Date: 7/17/85
Document Type: letter
Originator: Robert Hannesschlager
Originator-Affiliation: USEPA
Recipient: Jose Balderas
Recipient-Affiliation: Crystal City Manager
Description: response to city offer of assistance
Number of pages: 2
Document Number Sequence: 52

Document Date: 10/4/85
Document Type: news release
iginator: Region 6 AP
iginator-Affiliation: USEPA
Recipient: General
Recipient-Affiliation: General
Description: site information
Number of pages: 2
Document Number Sequence: 53

Document Date: 11/5/85
Document Type: letter
Originator: Carlene Chambers
Originator-Affiliation: USEPA (6H-SS)
Recipient: Charles Faulds
Recipient-Affiliation: TDWR
Description: comments on work scope
Number of pages: 3
Document Number Sequence: 54

Document Date: 12/4/85
Document Type: letter
Originator: Charles Faulds
riginator-Affiliation: TDWR
ecipient: Carlene Chambers
Recipient-Affiliation: USEPA (6H-SS)
Description: comments on work scope
Number of pages: 3
Document Number Sequence: 55

Document Date: 12/31/85
Document Type: Texas Water Commission
Originator: William E. Colbert Chief of Coummunity Relations
Originator-Affiliation: Hazardous Waste Management Division
Recipient: Mr. Carlene Chambers
Recipient-Affiliation: U. S. EPA Hazardous Waste Management Division
Description: Crystal City Airport Superfund Site
Number of pages: 23
Document Number Sequence: 56

Document Date: 1/7/86
Document Type: report
Originator: Martyn Turner/Greg Tipple
Originator-Affiliation: TWC
Recipient: N/A
Recipient-Affiliation: N/A
Description: work scope
Number of pages: 12
Document Number Sequence: 57

Document Date: 3/12/86
Document Type: conference record
Originator: M. Turner
Originator-Affiliation: A. Onjanan
Recipient: Jim McGuire
Recipient-Affiliation: consultants
Description: site visit
Number of pages: 2
Document Number Sequence: 58

Document Date: 3/19/86
Document Type: letter
Originator: Greg Tipple
Originator-Affiliation: TWC
Recipient: consultants
Recipient-Affiliation: (same)
Description: general questions/list of consultants
Number of pages: 9
Document Number Sequence: 59

Document Date: 4/10/86
Document Type: memo
Originator: David Sorrells
Originator-Affiliation: TWC
Recipient: Larry Soward
Recipient-Affiliation: TWC
Description: Commission Fact Sheet
Number of pages: 2
Document Number Sequence: 60

cument Date: 4/21/86
ocument Type: report
Originator: Stanley Hitt
Originator-Affiliation: U.S. EPA - TRS
Recipient: Jose Balderas
Recipient-Affiliation: Crystal City Manager
Description: Action Summary
Number of pages: 2
Document Number Sequence: 61

Document Date: 6/12/86
Document Type: report
Originator: Martyn Turner
Originator-Affiliation: TWC
Recipient: Jim McGuire
Recipient-Affiliation: U.S. EPA
Description: Revision Field Sampling
Number of pages: 2
Document Number Sequence: 62

Document Date: 6/26/86
ocument Type: cost proposal
riginator: EBASCO
Originator-Affiliation:
Recipient:
Recipient-Affiliation: USEPA
Description: cost breakdowns
Number of pages: 26
Document Number Sequence: 63

Document Date: 6/30/86
Document Type: contract
Originator:
Originator-Affiliation: USEPA - EBASCO Services
Recipient:
Recipient-Affiliation:
Description: contract for services for Crystal City Airport superfund
site investigation and feasibility study
Number of pages: 69
Document Number Sequence: 64

Document Date: 7/11/86
Document Type: letter
Originator: Edward Bates
Originator-Affiliation: EBASCO
Recipient: Martyn Turner
Recipient-Affiliation: TDWR
Description: clarify RI costs
Number of pages: 6
Document Number Sequence: 65

Document Date: 7/21/86
Document Type: letter
Originator: Martyn Turner
Originator-Affiliation: TDWR
Recipient: Ed Bates
Recipient-Affiliation: envirosphere
Description: proposed amendment
Number of pages: 2
Document Number Sequence: 66

Document Date: 8/1/86
Document Type: letter
Originator: Martyn Turner
Originator-Affiliation: TDWR
Recipient: Paul Sieminski
Recipient-Affiliation: USEPA
Description: Revised RI/FS Schedule
Number of pages: 2
Document Number Sequence: 67

Document Date: 8/8/86
Document Type: commentary
Originator: Jim McGuire
Originator-Affiliation: USEPA 6H-ST
Recipient: Joe Brown
Recipient-Affiliation: TDWR
Description: workplan comments
Number of pages: 5
Document Number Sequence: 68

Document Date: 8/13/86
Document Type: memo
Originator: E. Heyer
Originator-Affiliation: TDWR, QAO
Recipient: Martyn Turner
Recipient-Affiliation: TDWR
Description: comments on QAP;P
Number of pages: 3
Document Number Sequence: 69

Document Date: 8/21/86
Document Type: letter
Originator: TDWR
Originator-Affiliation:
Recipient: Ed Bates
Recipient-Affiliation: EBASCO
Description: comments on draft plans
Number of pages: 10
Document Number Sequence: 70

Document Date: 9/2/86
Document Type: telecommunication
Originator: Martyn Turner
Originator-Affiliation: TDWR
Recipient: Ed Bates
Recipient-Affiliation: EBASCO
Description: EPA comments CCA QA/QC Plan
Number of pages: 10
Document Number Sequence: 71

Document Date: 9/2/86
Document Type: letter
Originator: Paul Sieminski
Originator-Affiliation: USEPA
Recipient: David Sorrells
Recipient-Affiliation: TWC
Description: comments on QA/QP
Number of pages: 4
Document Number Sequence: 72

Document Date: 9/5/86
Document Type: report
Originator: Ed Bates
Originator-Affiliation: EBASCO
Recipient: Martyn Turner
Recipient-Affiliation: TDWR
Description: Revision Field Sampling Plan
Number of pages: 85
Document Number Sequence: 73

Document Date: 9/8/86
Document Type: date managed plan
Originator: EBASCO Services, Inc.
Originator-Affiliation: (same)
Recipient: Texas Water Commission
Recipient-Affiliation: EPA Region VI
Description: Data Management Plan for Crystal City Airport Superfund Site
Number of pages: 25
Document Number Sequence: 74

Document Date: 9/17/86
Document Type: QA/QC Quality Control Plan
Originator: Sam Mason
Originator-Affiliation: EBASCO
Recipient: EPA RPM R-VI
Recipient-Affiliation: EPA
Description: general report
Number of pages: 81
Document Number Sequence: 75

Document Date: 9/17/86
Document Type: letter
Originator: Bonnie Devos
Originator-Affiliation: USEPA-SPS
Recipient: Greg Tipple
Recipient-Affiliation: TWC
Description: conditions for approval to airport sampling plan
Number of pages: 3
Document Number Sequence: 76

Document Date: 9/17/86
Document Type: memo
Originator: E. Heyer
Originator-Affiliation: QAO, TDWR
Recipient: Martyn Turner
Recipient-Affiliation: TDWR
Description: EPA comments on QAPjP
Number of pages: 2
Document Number Sequence: 77

Document Date: 9/17/86
Document Type: letter
Originator: Martyn Turner
Originator-Affiliation: TDWR
Recipient: Sam Mason
Recipient-Affiliation: Envirosphere
Description: TWC comments
Number of pages: 4
Document Number Sequence: 78

Document Date: 9/23/86
Document Type: letter
Originator: David Sorrells
Originator-Affiliation: TDWR
Recipient: Bonnie Devos
Recipient-Affiliation: USEPA
Description: Revision Workplan Schedule
Number of pages: 3
Document Number Sequence: 79

Document Date: 9/29/86
Document Type: letter
Originator: Paul Sieminski
Originator-Affiliation: USEPA
Recipient: Greg Tipple
Recipient-Affiliation: TWC
Description: revisions to QAPjP
Number of pages: 2
Document Number Sequence: 80

)ocument Date: 10/1/86
cument Type: letter
iginator: Edward Bates
Originator-Affiliation: Envirosphere
Recipient: Martyn Turner
Recipient-Affiliation: TDWR
Description: revised page 60 QA/QC plan
Number of pages: 2
Document Number Sequence: 81

Document Date: 10/17/86
Document Type: interoffice memo
Originator: John Dupont
Originator-Affiliation: Texas Water Commission
Recipient: Martyn Turner
Recipient-Affiliation: H & SW Div., EPA
Description: Qaulity Assurance Inspection at EBASCO Mobile Laboratory
Number of pages: 2
Document Number Sequence: 82

Document Date: 10/22/86
Document Type: memo
riginator: Geol Pettigrew for Carl S. Hickam/Sr. Public Health Advisor
riginator-Affiliation: Dept. of Health & Human Services
Recipient: Jim McGuire
Recipient-Affiliation: Texas Remedial Section
Description: Proposed Action Level of Crystal City Airport Superfund Site
Number of pages: 1
Document Number Sequence: 83

Document Date: 10/23/86
Document Type: memo
Originator: Jim McGuire, Project Manager
Originator-Affiliation: Texas Remedial Section
Recipient: Paul Sieminski, Project Officer
Recipient-Affiliation: EPA State Programs Section
Description: Field Audit of Sample Collection at the Crystal City Airport Superfund Site
Number of pages: 2
Document Number Sequence: 84

Document Date: 10/29/86
Document Type: memo
Originator: John Dupont, Quality Assurance Inspector, Field Operations Division
Originator-Affiliation: Texas Water Commission
Recipient: Martyn Turner
Recipient-Affiliation: H & SW Div., EPA
Description: Quality Assurance Inspection at Hittman-EBASCO Laboratory
Number of pages: 2
Document Number Sequence: 85

Document Date: 11/6/86
Document Type: memo
Originator: Sam Mason, P.E., Site Manager
Originator-Affiliation: EBASCO Services, Inc.
Recipient: Martyn Turner
Recipient-Affiliation: EPA-Texas Water Commission
Description: Plan for Disposal of Liquids - Crystal City Airport Investigation Crystal City, Texas
Number of pages: 2
Document Number Sequence: 86

Document Date: 12/4/86
Document Type: newspaper article
Originator: Zavala Co. Sentinel
Originator-Affiliation: Crystal City, Texas
Recipient: public
Recipient-Affiliation:
Description: contamination still studied
Number of pages: 1
Document Number Sequence: 87

Document Date: 1/20/87
Document Type: letter
Originator: Edward Bates
Originator-Affiliation: EBASCO
Recipient: Martyn Turner
Recipient-Affiliation: TWC
Description: fluid disposition
Number of pages: 2
Document Number Sequence: 88

Document Date: 1/27/87
Document Type: contract amendment
Originator: Edward Bates
Originator-Affiliation: EBASCO
Recipient: Martyn Turner
Recipient-Affiliation: TWC
Description: contract #14-60042-2
Number of pages: 13
Document Number Sequence: 89

Document Date: 2/4/87
Document Type: table
Originator: Sam Mason
Originator-Affiliation: EBASCO
Recipient: Martyn Turner
Recipient-Affiliation: TWC
Description: response objectives
Number of pages: 2
Document Number Sequence: 90

Document Date: 2/13/87
Document Type: contract amendment
Originator: Larry Soward
Originator-Affiliation: TWC
Recipient: Edward Hlopak
Recipient-Affiliation: EBASCO
Description: contract #14-60042-2
Number of pages: 21
Document Number Sequence: 91

Document Date: 2/19/87
Document Type: letter
Originator: Edward Bates
Originator-Affiliation: EBASCO
Recipient: Martyn Turner
Recipient-Affiliation: TWC
Description: revision to QA/QC Plan
Number of pages: 2
Document Number Sequence: 92

Document Date: 2/20/87
Document Type: letter
Originator: Jim McGuire
Originator-Affiliation: USEPA
Recipient: Martyn Turner
Recipient-Affiliation: TWC
Description: disposal of liquids
Number of pages: 2
Document Number Sequence: 93

Document Date: 3/20/87
Document Type: conference record
Originator: Martyn Turner
Originator-Affiliation: Sam Mason, Rod Kimbro, Loring Pitts, Tim Wolternik, Jim McGuire, Stan Hitt, Martyn Turner, Greg Tipple
Recipient: same as above
Recipient-Affiliation: same as above
Description: conference Peri-Risk Assessment
Number of pages: 11
Document Number Sequence: 94

Document Date: 4/1/87
Document Type: conference record
Originator: Martyn Turner
Originator-Affiliation: TWC
Recipient: George Pettigrew, Carl Hickam, Stan Hitt, Jim McGuire, Sam Mason, Loring Ptts, martyn Turner, Greg Tipple
Recipient-Affiliation: same as above
Description: Risk Assessment Comments
Number of pages: 1
Document Number Sequence: 95

Document Date: 4/10/87
Document Type: letter
Originator: Stanley Hitt
Originator-Affiliation: USEPA-TR5
Recipient: Greg Tipple
Recipient-Affiliation: TWC
Description: summary of risk assessment
Number of pages: 2
Document Number Sequence: 96

Document Date: 4/13/87
Document Type: letter
Originator: E. C. Bates
Originator-Affiliation: Envirosphere
Recipient: Martyn Turner
Recipient-Affiliation: TWC
Description: alternative evaluation
Number of pages: 9
Document Number Sequence: 97

Document Date: 4/15/87
Document Type: tabel
Originator: EBASCO Atlanta
Originator-Affiliation: same as above
Recipient: general
Recipient-Affiliation: same as above
Description: parameters and definitions - cancer risk
Number of pages: 9
Document Number Sequence: 98

Document Date: 4/16/87
Document Type: conference record
Originator: Martyn Turner
Originator-Affiliation: TWC
Recipient: Greg Tipple, Sam Mason, Jim McGuire
Recipient-Affiliation: same as above
Description: FSRA - Final Alternative Comments
Number of pages: 1
Document Number Sequence: 99

Document Date: 4/24/87
Document Type: memo
Originator: Jim McGuire
Originator-Affiliation: USEPA (6H-ST)
Recipient: Martyn Turner, Greg Tipple, Sam Mason
Recipient-Affiliation: same as above
Description: Potential Remedial Alternatives
Number of pages: 2
Document Number Sequences: 100

Document Date: 6/87
Document Type: RI Final Report
Originator: EBASCO Services, Inc.
Originator-Affiliation: (same)
Recipient: Texas Water Commission
Recipient-Affiliaiton: EPA Region VI
Description: Remedial Investigation Final Report
Number of pages: 156
Document Number Sequence: 101

Document Date: 6/87
Document Type: Final Report RI
Originator: EBASCO Services, Inc.
Originator-Affiliation: (same)
Recipient: Texas Water Commission
Recipient-Affiliation: EPA Region Vi
Description: RI Appendix
Number of pages: 202
Document Number Sequence: 102

Document Date: 7/87
Document Type: feasibility study
Originator: EBASCO Services, Inc.
Originator-Affiliation: (same)
Recipient: Texas Water Commission
Recipient-Affiliation: EPA Region VI
Description: Final Report
Number of pages: 334
Document Number Sequence: 103

Document Date: 7/24/87
Document Type: news release
Originator: USEPA
Originator-Affiliation: USEPA
Recipient: general public
Recipient-Affiliation: general public
Description: EPA Environmental News
Number of pages: 2
Document Number Sequence: 104

ATTACHMENT B

Crystal City Airport Site
Crystal City, Texas
Responsiveness Summary

This community relations responsiveness summary is divided into two sections:

Section I: Background on Community Involvement and Concern. This section provides a brief history of community interest and concern raised during the remedial planning activities at the Crystal City Airport Superfund site.

Section II: Summary of Major Comments Received During the Public Comment Period and the EPA Responses to the Comments. Both written and spoken comments are categorized by topics. EPA responses to these relevant major topics are also presented.

I. Background on Community Involvement

In early 1982 a local farmer filed suit against Franks Crop Dusting Service alledging that a pesticide sprayed by Frank's drifted onto his pecan grove and killed his pecan trees. The farmer won his suit and the crop dusting operation went out of business.

The Texas Department of Water Resources (now the TWC) requested funds from EPA in October 1983 to mitigate the immediate hazards at the site. Contaminated soil and some 75 drums were removed and placed in trenches. Clean soil was used to backfill and grade. In 1984 a fence was installed and caution signs were posted.

On October 29, 1984, a meeting was held at the Crystal City Library to brief the public and city officials about the studies to be conducted at the site. Approximately 25 people attended the briefing conducted by the TWC and EPA.

The people of Crystal City, Texas learned via an EPA news release on October 4, 1985, that the TWC had received funds to conduct studies at the airport site. On September 9, 1986, TWC staff made a presentation to the Mayor and city council members regarding the upcoming studies at the site.

On the afternoon of August 20, 1987, representatives of TWC and EPA met with the Mayor, City Manager, Assistant Superintendent of Schools and other civic leaders. Twenty-four people attended the meeting. The results of the studies were discussed along with the various remedial alternatives. That evening the TWC and EPA conducted a public meeting to brief the citizens about the study results; review the remedial alternatives considered; describe EPA's preferred remedy and, answered questions and comments. 45 people attended this meeting.

Esequiel Guzman requested, on behalf of the Mayor and other civic leaders, that EPA extend the public comment period. A two-week extension was granted changing the closing date to September 14, 1987. This decision was announced to the public via a news release on September 2, 1987.

Following the extended comment period, a community meeting was held on September 21, 1987, to answer additional questions regarding the Remedial Alternatives. During this meeting, several people supported incineration of the contaminants. Approximately 50 people attended this meeting.

II. Summary of Public Comments Received During Public Comment Period and Agency Responses

The public comment period on the Feasibility Study for the Crystal City Airport Superfund site opened August 10, 1987 and closed September 14, 1987. A public meeting was held August 20, 1987, in Crystal City, Texas with approximately 45 people in attendance. a summary of the comment provided during the comment period is provided below.

Comment #1

EPA's proposed remedy of consolidating and capping waste at the Crystal City Airport site "... does not meet the requirements established by Congress in the Superfund Amendments and Reauthorization Act of 1986 (SARA)."

EPA Response to Comment #1

The consolidation/capping remedy was proposed due to the unique nature of contamination at this site, because it fulfilled all legal requirements, and best conforms with SARA's remedy selection criteria. In proposing this remedy, full attention was given to Section 121(b)(1) of SARA.

The law clearly requires a preference for alternative treatment technologies, but it does not mandate their use where they would be inappropriate. The proposed remedy's conformance with the preference of the law is provided in the following responses.

Comment #2

The proposed consolidation-capping remedy is a "substandard/second class" remedy for the site. Explain EPA's justification for recommending a remedy which does not treat waste to significantly reduce the mobility, toxicity or volume of the contaminants.

EPA Response to Comment #2

The remedy proposed by EPA would be fully protective of human health and the environment, consistent with the SARA and in no way would be a "second class" cleanup. The Remedial Investigation report found that, due to the

alkaline makeup of of the soil, the organic pesticides and arsenic compounds have been adsorbed to the soils. Furthermore, because the onsite soils have low permeability and there is no groundwater other than that which percolates from the surface, the potential for further migration of waste is extremely remote. Further trying to immobilize the waste is not practicable since the contaminants are effectively immobilized and isolated. The organic compounds will continue to degrade under the cap into less toxic compounds, however, significant reductions in toxicity were not claimed for this remedy. Finally, because the contaminants represent less than one-tenth of a percent of the volume of the soil, none of the demonstrated alternatives, including a standard incineration unit, could be expected to achieve a significant reduction in volume.

Comment #3

How does the proposed consolidation remedy comply with the minimum technology requirements for land disposal facilities including the land disposal ban?

EPA Response to Comment #3

RCRA is not considered to be applicable as it pertains to the proposed remedy, although some of RCRA's provisions; such as cap design, are considered relevant and appropriate. For the RCRA minimum technology requirements for landfills (40 CFR 264 Subpart N) to be applicable, disposal or management of waste must occur. The proposed remedy is not considered a disposal action since the contaminated material will be consolidated in the unit or area of contamination from which they originated. A multi-layered cap (RCRA equivalent) while not an applicable requirement, is considered relevant and appropriate for the overall effectiveness of the remedy; therefore, a RCRA cap will be placed over the consolidation cell. The cap will remove the potential of future infiltration as well as remove the direct contact threat posed by the currently exposed waste.

Comment #4

Is reburial of contaminated soil considered a permanent solution even after the 30-year maintenance period has ended?

EPA Response to Comment #4

Yes. The Remedial Investigation found that the arsenic and organic pesticides spilled at the site have been locked into the top foot of the alkaline soils at the site. The degree that contaminants are bound up is of the same degree that would have been achieved if the pure contaminants had been processed by a solidification technology. Consolidating this "naturally treated" waste under a hazardous waste cap is therefore considered permanent. The 30-year maintenance period mentioned in the Feasibility Study is used to calculate operation and maintenance costs for each remedy; it does not imply that the effectiveness of the cap would cease at the end of that time.

Comment #5

Was the recommendation for the consolidation remedy based on the low population of the area surrounding the airport site?

EPA Response to Comment #5

No. A site specific risk assessment was conducted in order to develop the health based clean-up criteria for the site. The assessment considered the nearest possible receptor (residents of nearby housing project) as the worst case exposure scenario. The actual number of people which could be potentially exposed is not a factor in the assessment, but rather the distance to the nearest receptor within the total number of potentially exposed people. Although the density of the population is not a factor in developing a cleanup level; the location of the population relative to the site is a factor in determining the feasibility of various alternatives.

Comment #6

Has the location of the consolidation cell already been determined?

EPA Response to Comment #6

No. The location of the consolidation cell will be determined during the design phase of the project. The Agency will discuss potential locations with the city management during the design.

Comment #7

The Agency's own Feasibility Study contradicts the rationale used for proposing the consolidation remedy.

EPA Response to Comment #7

The intent of the statements in Section 4 of the Feasibility Study regarding the reduction of mobility, toxicity or volume was not to suggest non-compliance with the requirements of SARA. As previously stated, Section 121(b)(1) of SARA prefers the selection of actions which significantly reduce mobility, toxicity or volume; however, it is not a requirement of the provision. The statement made regarding Section 121(b)(1) serves only to show how each remedy meets the preference of SARA, relative to the other remedies. In no case did any of the demonstrated alternatives significantly reduce mobility, toxicity or volume; therefore, all remedies, with the exception of no action, are considered equally protective.

To clarify EPA's position on the proposed remedy, copies of the draft Summary of Remedial Alternative Selection for the site, together with the Remedial Investigation and Feasibility Study, were made available at the information repositories at the start of the public comment period. This draft document represents the Agency's synthesis of site studies, and contains the rationale for EPA's proposed remedy. While not a final document, the draft Summary of Remedial Alternative Selection is less ambiguous about the conformance of the proposed remedy with SARA. Comments and questions received during the public comment period are used to further clarify the basis for EPA's proposed remedy, or another remedy, should the proposed plan be found to be inappropriate.

Comment #8

What activities is EPA conducting to prevent future contamination of airports due to crop dusting operations?

EPA Response to Comment #8

The Agency has imposed stringent requirement which regulate the use of and disposal of chemicals used by industry including the aerial applicating industry. In the State of Texas, funds have been provided for limited soil sampling at airports which appear to pose a public health threat. Based on the results of the sampling, the sites could be included on future priority lists for the Superfund.

Comment #9

Why was incineration not chosen as EPA's preferred remedy for the Crystal City Airport site?

EPA Response to Comment #9

This alternative remedy did not conform with the Superfund statute as well as the consolidation/capping remedy. Incineration would remove the organic contaminants from the soil; however, the most toxic contaminant, arsenic, would continue to be present in the residual ash/soil following treatment. The reduction in volume would be, at best, minimal since the waste makes up only a small percentage of the contaminated soil. Using currently available and demonstrated incineration systems, the arsenic would remain in the scorched earth, or scrubber sludges, and would require storage as hazardous waste.

Comment #10

Several people were concerned that health monitoring was not conducted during the recent remedial investigation and requested this occur in the near future.

EPA Response to Comment #10

Health monitoring was not conducted due to the lack of any documented health problem relating to the contaminants at the site. Should evidence of health related problems exist, the information should be submitted to the Texas Department of Health for further action.